



HP A-MSR30 Series

Data sheet

Product overview

Designed for use by enterprise branch and regional offices as well as service providers seeking enhanced business continuity and operational efficiency, the HP A-MSR30 Series delivers unmatched flexibility. A high-performance processor and modular design, combined with embedded applications for business productivity, enhanced security, and performance acceleration, enable users to meet their networking objectives today, and easily modify applications and services as their businesses evolve. HP A-MSR30 series routers feature a comprehensive portfolio of interface and module options for reliable, scalable LAN and WAN communications, along with unparalleled security and convergence capabilities through embedded and integrated encryption and voice processing. A-MSR30 routers deliver services at up to wire-speed multiple T1/E1 rates, and provide lasting investment protection, reduced capital costs, and lower operating expenses.

Key features

- Open application architecture
- Convergence of routing, switching, voice, security
- Embedded encryption, firewall, security feature
- Converged IP telephony solution
- Support for AC, DC, and PoE



Features and benefits

Quality of Service (QoS)

- **Traffic policing:** supports Committed Access Rate (CAR) and line rate
- **Congestion management:** supports FIFO, PQ, CQ, WFQ, CBQ, and RTPQ
- **Congestion avoidance:** weighted Random Early Detection (WRED)/RED
- **Other QoS technologies:** support traffic shaping, FR QoS, MPLS QoS, and MP QoS/LFI

Management

- **Management interface control:** provides management access through modem port and terminal interface; provides access through terminal interface, telnet, or SSH
- **Industry-standard CLI with a hierarchical structure:** reduces training time and expenses, and increases productivity in multivendor installations
- **Management security:** multiple privilege levels, with password protection, restrict access to critical configuration commands; ACLs provide telnet and SNMP access; local and remote syslog capability allow logging of all access
- **SNMPv1, v2, and v3:** provide complete support of SNMP; SNMPv3 supports increased security using encryption; provide full support of industry-standard MIBs plus private MIB extensions
- **Remote monitoring (RMON):** uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **FTP, TFTP, and SFTP support:** File Transfer Protocol allows bi-directional transfers over a TCP/IP network and is used for configuration updates; Trivial FTP is a simpler method using UDP
- **Debug and sampler utility:** supports ping and traceroute for both IPv4 and IPv6
- **Network Time Protocol (NTP):** synchronizes timekeeping among distributed time servers and clients; keeps consistent timekeeping among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time

- **Info center:** provides a central information center for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **Network Quality Analyzer (NQA):** analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays; allows network manager to determine overall network performances and diagnose and locate network congestion points or failures

Connectivity

- **High-density port connectivity:** provides up to 10 interface module slots and up to 90 Fast Ethernet ports
- **Multiple WAN interfaces:** provides a traditional link with Serial, E1/T1, ADSL, G.SHDSL, and ISDN/AM backup; provides high-density Ethernet access with WAN Fast Ethernet/Gigabit Ethernet, LAN 4-/9-/16-/24-port Fast Ethernet, and PoE; provides mobility access with 11g/n Wi-Fi and 3G
- **3G access support:** allows use of SIC 3G module for high reliability; supports popular USB 3G modem
- **Ideal IP telephony solutions:** support FXO, FXS, T1, E1, and BRI in various densities; support SIP voice communications to VCX; provide Web browser-based administration, Smart Dial Routing, FXS and FXO 1:1 binding for all ports, Power to Escape to PSTN when IP failures occur, and Enhanced Local MSR Survivability
- **Flexible port selection:** provides combination of fiber and copper interface modules, 100/1000Base-X auto-speed selection, and 10/100/1000Base-T auto-speed detection plus auto duplex and MDI/MDI-X
- **Packet storm protection:** protects against broadcast, multicast, or unicast storms with user-defined thresholds
- **Loopback:** supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility

Performance

- **Excellent forwarding performance:** provides forwarding performance from 220 Kpps to 360 Kpps; meets today's and future bandwidth-intensive application demands for enterprise businesses
- **Powerful encryption capacity:** includes embedded hardware encryption accelerator to improve encryption performance
- **Flexible chassis selection:** offers a choice of more than five routers and meets different requirements on enterprise branches

Resiliency and high availability

- **Virtual Router Redundancy Protocol (VRRP):** allows groups of two routers to dynamically back each other up to create highly available routed environments
- **Backup Centre:** functions as a part of the management and backup function to provide backup for interfaces on your device; delivers reliability by switching traffic over to a backup interface when the primary one fails
- **External redundant power supply:** provides high reliability

Layer 2 switching

- **Spanning Tree:** fully supports standard IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol
- **IGMP and MLD snooping:** effectively control and manage the flooding of multicast packets in a Layer 2 network
- **Port mirroring:** duplicates port traffic (ingress and egress) to a local or remote monitoring port
- **VLANs:** support up to 4094 port or IEEE 802.1Q-based VLANs

Layer 3 services

- **Address Resolution Protocol (ARP):** determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **User Datagram Protocol (UDP) helper:** redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP):** simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

Layer 3 routing

- **Static IPv4 routing:** provides simple, manually configured IPv4 routing
- **Routing Information Protocol (RIP):** uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- **Border Gateway Protocol 4 (BGP-4):** Exterior Gateway Protocol (EGP) with path vector protocol uses TCP for enhanced reliability for the route discovery process, reduces bandwidth consumption by advertising only incremental updates, and supports extensive policies for increased flexibility, as well as scales to very large networks
- **OSPF:** Interior Gateway Protocol (IGP) using link-state protocol for faster convergence; supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Intermediate system to intermediate system (IS-IS):** Interior Gateway Protocol (IGP) using path-vector protocol, which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Static IPv6 routing:** provides simple, manually configured IPv6 routing
- **Dual stack:** maintains separate stacks for IPv4 and IPv6 to ease transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng):** extends RIPv2 to support IPv6 addressing
- **OSPFv3:** extends OSPFv2 to support IPv6 addressing

- **BGP+:** extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **IS-IS for IPv6:** extends IS-IS to support IPv6 addressing
- **IPv6 tunneling:** is an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels
- **Multiprotocol Label Switching (MPLS):** uses BGP to advertise routes across Label Switching Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, thus reducing complexity and increasing performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN:** allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN:** establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS LDPs; requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Policy routing:** allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **RADIUS:** eases security access administration by using a password authentication server
- **Network address translation (NAT):** supports one-to-one NAT, many-to-many NAT, and NAT control, enabling NAT to support multiple connections; supports backlog in NAT/NAPT, a limit on the number of connections, session log, and multi-instance
- **Secure Shell (SSHv2):** uses external servers to securely login into a remote device or securely login into MSR from a remote location; with authentication and encryption, it protects against IP spoofing and plain text password interception; increases the security of SFTP transfers
- **Unicast Reverse Path Forwarding (URPF):** allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks

Convergence

- **Internet Group Management Protocol (IGMP):** is used by IP hosts to establish and maintain multicast groups; supports v1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks
- **Protocol Independent Multicast (PIM):** is used for IPv4 and IPv6 multicast applications; supports PIM dense mode (PIM-DM), sparse mode (PIM-SM), and source-specific mode (PIM-SSM)
- **Multicast Source Discovery Protocol (MSDP):** is used for inter-domain multicast applications, allowing multiple PIM-SM domains to interoperate
- **Multicast Border Gateway Protocol (MBGP):** allows multicast traffic to be forwarded across BGP networks, separate from unicast traffic

Integration

- **Embedded NetStream:** local and global server load balancing module improves traffic distribution using powerful scheduling algorithms, including Layer 4 to 7 services; monitors the health status of servers and firewalls
- **Embedded VPN firewall:** provides enhanced stateful packet inspection and filtering; provides advanced VPN services with Triple DES (3DES) and Advanced Encryption Standard (AES) encryption at high performance and low latency, Web content filtering, and application prioritization and enhancement

Security

- **Access control list (ACL):** supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent illegal users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **TACACS+:** is an authentication tool using TCP with encryption of the full authentication request that provides added security
- **MAC authentication:** provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication
- **Network login:** standard IEEE 802.1x allows authentication of multiple users per port

Additional information

- **OPEX savings:** a common operating system simplifies and streamlines deployment, management, and training, thereby cutting costs, as well as reducing the chance for human error associated with having to manage multiple operating systems across different platforms and network layers
- **High reliability:** provides a state-of-the-art unified code base
- **Faster time to market:** engineering efficiencies allow new and custom features to be brought rapidly to the market with better initial and ongoing stability
- **Green initiative support:** provides support for RoHS and WEEE regulations

Product architecture

- **Ideal multiservice platform:** provides data, voice SIP and H.323, LAN switching, wireless, 3G, firewall, and IPSec/SSL VPN all in one box
- **Embedded service modules for security and voice:** embedded Voice Co-Processing Modules (VCPMs) and Voice Processing Modules (VPMs) accommodate digital signal processor (DSP) modules for packet voice processing; embedded hardware encryption modules, Standard Network Data Encryption (SNDE) cards, and Advanced Network Data Encryption (ANDE) cards do not occupy I/O slots
- **Open application architecture:** with open application architecture, MSR series routers provide unmatched application and services flexibility, and have the potential to deliver the functionality of multiple devices, creating capital and operational expense savings and lasting investment protection
- **USB interface:** uses USB memory disk to download and upload configuration files; supports external USB 3G modem for 3G WAN uplink
- **Flexible modular design:** multiple types of modules meet different requirements; for example, Smart Interface Cards (SICs) are small and cost-effective modules, Multi-functional Interface Modules (MIMs) are more high-density and affordable modules, Flexible Interface Cards (FICs) provide high reliability and are hot-swappable, and double-width modules provide high density

Warranty and support

- **1-year warranty:** with advance replacement and 30-calendar-day delivery (available in most countries)
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to www.hp.com/networking/warranty for details on the support provided and the period during which support is available
- **Software releases:** refer to www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)

HP A-MSR30 Series

Specifications



HP A-MSR30-10 Multi-Service Router (JF816A)



HP A-MSR30-16 Multi-Service Router (JF233A)



HP A-MSR30-16 PoE Multi-Service Router (JF234A)

Ports	2 SIC slots 1 MIM module slot 2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full	4 SIC slots 1 MIM module slot 2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full	4 SIC slots 1 MIM module slot 2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full
Physical characteristics			
Dimensions	14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
Weight	10.58 lb. (4.8 kg)	13.23 lb. (6 kg)	13.23 lb. (6 kg)
Memory and processor			
Processor	RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack
Performance			
Throughput	220 Kpps (64-byte packets)	240 Kpps (64-byte packets)	240 Kpps (64-byte packets)
Routing table size	30,000 entries	30,000 entries	30,000 entries
Environment			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%
Electrical characteristics			
Maximum heat dissipation	113 BTU/hr (119.21 kJ/hr)	341 BTU/hr (359.76 kJ/hr)	341 BTU/hr (359.76 kJ/hr)
Voltage	100-120 / 200-240 VAC	100-120 / 200-240 VAC	100-120 / 200-240 VAC
Maximum power rating	54 W	100 W	100 W
PoE power			150 W
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68	FCC part 68	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB

Specifications (continued)

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Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP A-MSR30-10 Multi-Service Router (JF816A)	HP A-MSR30-16 Multi-Service Router (JF233A)	HP A-MSR30-16 PoE Multi-Service Router (JF234A)
Standards and protocols (applies to all products in series)		
BGP RFC 1163 Border Gateway Protocol (BGP) RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping	RFC 1490 Multiprotocol Interconnect over Frame Relay RFC 1519 CIDR RFC 1534 DHCP/BOOTP Interoperation RFC 1542 Clarifications and Extensions for the Bootstrap Protocol RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP) RFC 1577 Classical IP and ARP over ATM RFC 1613 Cisco Systems X.25 over TCP (XOT) RFC 1624 Incremental Internet Checksum RFC 1631 NAT RFC 1638 PPP Bridging Control Protocol (BCP) RFC 1661 The Point-to-Point Protocol (PPP) RFC 1662 PPP in HDLC-like Framing RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2 RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks RFC 1721 RIP-2 Analysis RFC 1722 RIP-2 Applicability RFC 1723 RIP v2 RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1 RFC 1812 IPv4 Routing RFC 1829 The ESP DES-CBC Transform RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses RFC 1944 Benchmarking Methodology for Network Interconnect Devices RFC 1973 PPP in Frame Relay RFC 1974 PPP Stac LZS Compression Protocol RFC 1990 The PPP Multilink Protocol (MP) RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP) RFC 2091 Trigger RIP RFC 2131 DHCP RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification RFC 2280 Routing Policy Specification Language (RPSL) RFC 2284 EAP over LAN RFC 2338 VRRP RFC 2364 PPP Over AAL5 RFC 2374 An Aggregatable Global Unicast Address Format RFC 2451 The ESP CBC-Mode Cipher Algorithms RFC 2453 RIPv2 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols RFC 2511 Internet X.509 Certificate Request Message Format RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE) RFC 2644 Directed Broadcast Control RFC 2661 L2TP RFC 2663 NAT Terminology and Considerations RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 RFC 2694 DNS extensions to Network Address Translators (DNS_ALG) RFC 2702 Requirements for Traffic Engineering Over MPLS RFC 2747 RSVP Cryptographic Authentication RFC 2763 Dynamic Name-to-System ID mapping support RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT) RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2784 Generic Routing Encapsulation (GRE) RFC 2787 Definitions of Managed Objects for VRRP RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 2993 Architectural Implications of NAT RFC 3022 Traditional IP Network Address Translator (Traditional NAT) RFC 3027 Protocol Complications with the IP Network Address Translator RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3036 LDP Specification RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS
Device management RFC 1305 NTPv3 RFC 1945 Hypertext Transfer Protocol - HTTP/1.0 RFC 2271 FrameWork RFC 2452 MIB for TCP6 RFC 2454 MIB for UDP6		
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		IPv6 RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration

Specifications (continued)

	HP A-MSR30-10 Multi-Service Router (JF816A)	HP A-MSR30-16 Multi-Service Router (JF233A)	HP A-MSR30-16 PoE Multi-Service Router (JF234A)
Standards and protocols (applies to all products in series)	RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2472 IP Version 6 over PPP RFC 2473 Generic Packet Tunneling in IPv6 RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 MIBs RFC 1213 MIB II RFC 1229 Interface MIB Extensions RFC 1286 Bridge MIB RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interfaces MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2618 RADIUS Client MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB RFC 2933 IGMP MIB RFC 3813 MPLS LSR MIB	Network management IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1905 SNMPv2 Protocol Operations RFC 2272 SNMPv3 Management Protocol RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2275 VACM for SNMPv3 RFC 2575 SNMPv3 View-based Access Control Model (VACM) RFC 3164 BSD syslog Protocol OSPF RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA QoS/CoS IEEE 802.1P (CoS) RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP Security IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm	RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication RFC 2138 RADIUS Authentication RFC 2209 RSVP-Message Processing RFC 2246 Transport Layer Security (TLS) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication VPN RFC 2403 - HMAC-MD5-96 RFC 2404 - HMAC-SHA1-96 RFC 2405 - DES-CBC Cipher algorithm RFC 2547 BGP/MPLS VPNs RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP RFC 2842 Capabilities Advertisement with BGP-4 RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2918 Route Refresh Capability for BGP-4 RFC 3107 Carrying Label Information in BGP-4 IPsec RFC 1828 IP Authentication using Keyed MD5 RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation RFC 2410 - The NULL Encryption Algorithm and its use with IPsec RFC 2411 IP Security Document Roadmap RFC 2412 - OAKLEY RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

Specifications



HP A-MSR30-20 Multi-Service Router (JF284A)



HP A-MSR30-20 PoE Multi-Service Router (JF802A)



HP A-MSR30-20 DC Multi-Service Router (JF235A)

Ports	4 SIC slots 2 MIM module slots 2 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only	4 SIC slots 2 MIM module slots 2 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only	4 SIC slots 2 MIM module slots 2 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only
Physical characteristics			
Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
Weight	15.21 lb. (6.9 kg)	15.21 lb. (6.9 kg)	15.21 lb. (6.9 kg)
Memory and processor			
Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack
Performance			
Throughput	300 Kpps (64-byte packets)	300 Kpps (64-byte packets)	300 Kpps (64-byte packets)
Routing table size	30,000 entries	30,000 entries	30,000 entries
Environment			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%
Electrical characteristics			
Maximum heat dissipation	426 BTU/hr (449.43 kJ/hr)	426 BTU/hr (449.43 kJ/hr)	426 BTU/hr (449.43 kJ/hr)
Voltage	100-120 / 200-240 VAC	100-120 / 200-240 VAC	
DC Voltage			-48 VDC to -60 VDC
Maximum power rating	125 W	125 W	125 W
PoE power		150 W	
Frequency	50 / 60 Hz	50 / 60 Hz	
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68	FCC part 68	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB

Specifications (continued)

	HP A-MSR30-20 Multi-Service Router (JF284A)	HP A-MSR30-20 PoE Multi-Service Router (JF802A)	HP A-MSR30-20 DC Multi-Service Router (JF235A)
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP A-MSR30-20 Multi-Service Router (JF284A)	HP A-MSR30-20 PoE Multi-Service Router (JF802A)	HP A-MSR30-20 DC Multi-Service Router (JF235A)
Standards and protocols (applies to all products in series)		
BGP RFC 1163 Border Gateway Protocol (BGP) RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping	RFC 1490 Multiprotocol Interconnect over Frame Relay RFC 1519 CIDR RFC 1534 DHCP/BOOTP Interoperation RFC 1542 Clarifications and Extensions for the Bootstrap Protocol RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP) RFC 1577 Classical IP and ARP over ATM RFC 1613 Cisco Systems X.25 over TCP (XOT) RFC 1624 Incremental Internet Checksum RFC 1631 NAT RFC 1638 PPP Bridging Control Protocol (BCP) RFC 1661 The Point-to-Point Protocol (PPP) RFC 1662 PPP in HDLC-like Framing RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2 RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks RFC 1721 RIP-2 Analysis RFC 1722 RIP-2 Applicability RFC 1723 RIP v2 RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1 RFC 1812 IPv4 Routing RFC 1829 The ESP DES-CBC Transform RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses RFC 1944 Benchmarking Methodology for Network Interconnect Devices RFC 1973 PPP in Frame Relay RFC 1974 PPP Stac LZS Compression Protocol RFC 1990 The PPP Multilink Protocol (MP) RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP) RFC 2091 Trigger RIP RFC 2131 DHCP RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification RFC 2280 Routing Policy Specification Language (RPSL) RFC 2284 EAP over LAN RFC 2338 VRRP RFC 2364 PPP Over AAL5 RFC 2374 An Aggregatable Global Unicast Address Format RFC 2451 The ESP CBC-Mode Cipher Algorithms RFC 2453 RIPv2 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols RFC 2511 Internet X.509 Certificate Request Message Format RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE) RFC 2644 Directed Broadcast Control RFC 2661 L2TP RFC 2663 NAT Terminology and Considerations RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 RFC 2694 DNS extensions to Network Address Translators (DNS_ALG) RFC 2702 Requirements for Traffic Engineering Over MPLS RFC 2747 RSVP Cryptographic Authentication RFC 2763 Dynamic Name-to-System ID mapping support RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT) RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2784 Generic Routing Encapsulation (GRE) RFC 2787 Definitions of Managed Objects for VRRP RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 2993 Architectural Implications of NAT RFC 3022 Traditional IP Network Address Translator (Traditional NAT) RFC 3027 Protocol Complications with the IP Network Address Translator RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3036 LDP Specification RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS
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		IPv6 RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration

Specifications (continued)

	HP A-MSR30-20 Multi-Service Router (JF284A)	HP A-MSR30-20 PoE Multi-Service Router (JF802A)	HP A-MSR30-20 DC Multi-Service Router (JF235A)
Standards and protocols (applies to all products in series)	RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2472 IP Version 6 over PPP RFC 2473 Generic Packet Tunneling in IPv6 RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 MIBs RFC 1213 MIB II RFC 1229 Interface MIB Extensions RFC 1286 Bridge MIB RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interfaces MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2618 RADIUS Client MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB RFC 2933 IGMP MIB RFC 3813 MPLS LSR MIB	Network management IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1905 SNMPv2 Protocol Operations RFC 2272 SNMPv3 Management Protocol RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2275 VACM for SNMPv3 RFC 2575 SNMPv3 View-based Access Control Model (VACM) RFC 3164 BSD syslog Protocol OSPF RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA QoS/CoS IEEE 802.1P (CoS) RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP Security IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm	RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication RFC 2138 RADIUS Authentication RFC 2209 RSVP-Message Processing RFC 2246 Transport Layer Security (TLS) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication VPN RFC 2403 - HMAC-MD5-96 RFC 2404 - HMAC-SHA1-96 RFC 2405 - DES-CBC Cipher algorithm RFC 2547 BGP/MPLS VPNs RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP RFC 2842 Capabilities Advertisement with BGP-4 RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2918 Route Refresh Capability for BGP-4 RFC 3107 Carrying Label Information in BGP-4 IPsec RFC 1828 IP Authentication using Keyed MD5 RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation RFC 2410 - The NULL Encryption Algorithm and its use with IPsec RFC 2411 IP Security Document Roadmap RFC 2412 - OAKLEY RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

Specifications



HP A-MSR30-40 Multi-Service Router (JF229A)



HP A-MSR30-40 PoE Multi-Service Router (JF803A)



HP A-MSR30-40 DC Multi-Service Router (JF287A)

Ports	4 SIC slots 4 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports	4 SIC slots 4 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports	4 SIC slots 4 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports
Physical characteristics			
Dimensions	16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)	16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)	16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)
Weight	26.23 lb. (11.9 kg)	26.23 lb. (11.9 kg)	26.23 lb. (11.9 kg)
Memory and processor			
Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack
Performance			
Throughput	360 Kpps (64-byte packets)	360 Kpps (64-byte packets)	360 Kpps (64-byte packets)
Routing table size	30,000 entries	30,000 entries	30,000 entries
Environment			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing
Electrical characteristics			
Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)	717 BTU/hr (756.44 kJ/hr)	717 BTU/hr (756.44 kJ/hr)
Voltage	100-120 / 200-240 VAC	100-120 / 200-240 VAC	
DC Voltage			-40 VDC to -60 VDC
Maximum power rating	210 W	210 W	210 W
PoE power		375 W	
Frequency	50 / 60 Hz	50 / 60 Hz	
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68	FCC part 68	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB

Specifications (continued)

	HP A-MSR30-40 Multi-Service Router (JF229A)	HP A-MSR30-40 PoE Multi-Service Router (JF803A)	HP A-MSR30-40 DC Multi-Service Router (JF287A)
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP A-MSR30-40 Multi-Service Router (JF229A)	HP A-MSR30-40 PoE Multi-Service Router (JF803A)	HP A-MSR30-40 DC Multi-Service Router (JF287A)
Standards and protocols (applies to all products in series)		
BGP RFC 1163 Border Gateway Protocol (BGP) RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping	RFC 1490 Multiprotocol Interconnect over Frame Relay RFC 1519 CIDR RFC 1534 DHCP/BOOTP Interoperation RFC 1542 Clarifications and Extensions for the Bootstrap Protocol RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP) RFC 1577 Classical IP and ARP over ATM RFC 1613 Cisco Systems X.25 over TCP (XOT) RFC 1624 Incremental Internet Checksum RFC 1631 NAT RFC 1638 PPP Bridging Control Protocol (BCP) RFC 1661 The Point-to-Point Protocol (PPP) RFC 1662 PPP in HDLC-like Framing RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2 RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks RFC 1721 RIP-2 Analysis RFC 1722 RIP-2 Applicability RFC 1723 RIP v2 RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1 RFC 1812 IPv4 Routing RFC 1829 The ESP DES-CBC Transform RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses RFC 1944 Benchmarking Methodology for Network Interconnect Devices RFC 1973 PPP in Frame Relay RFC 1974 PPP Stac LZS Compression Protocol RFC 1990 The PPP Multilink Protocol (MP) RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP) RFC 2091 Trigger RIP RFC 2131 DHCP RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification RFC 2280 Routing Policy Specification Language (RPSL) RFC 2284 EAP over LAN RFC 2338 VRRP RFC 2364 PPP Over AAL5 RFC 2374 An Aggregatable Global Unicast Address Format RFC 2451 The ESP CBC-Mode Cipher Algorithms RFC 2453 RIPv2 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols RFC 2511 Internet X.509 Certificate Request Message Format RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE) RFC 2644 Directed Broadcast Control RFC 2661 L2TP RFC 2663 NAT Terminology and Considerations RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 RFC 2694 DNS extensions to Network Address Translators (DNS_ALG) RFC 2702 Requirements for Traffic Engineering Over MPLS RFC 2747 RSVP Cryptographic Authentication RFC 2763 Dynamic Name-to-System ID mapping support RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT) RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2784 Generic Routing Encapsulation (GRE) RFC 2787 Definitions of Managed Objects for VRRP RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 2993 Architectural Implications of NAT RFC 3022 Traditional IP Network Address Translator (Traditional NAT) RFC 3027 Protocol Complications with the IP Network Address Translator RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3036 LDP Specification RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS
Device management RFC 1305 NTPv3 RFC 1945 Hypertext Transfer Protocol - HTTP/1.0 RFC 2271 FrameWork RFC 2452 MIB for TCP6 RFC 2454 MIB for UDP6		
General protocols IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Reconfiguration of Spanning Tree RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 855 Telnet Option Specification RFC 856 TELNET RFC 858 Telnet Suppress Go Ahead Option RFC 894 IP over Ethernet RFC 925 Multi-LAN Address Resolution RFC 950 Internet Standard Subnetting Procedure RFC 959 File Transfer Protocol (FTP) RFC 1006 ISO transport services on top of the TCP: Version 3 RFC 1027 Proxy ARP RFC 1034 Domain Concepts and Facilities RFC 1035 Domain Implementation and Specification RFC 1042 IP Datagrams RFC 1058 RIPv1 RFC 1071 Computing the Internet Checksum RFC 1091 Telnet Terminal-Type Option RFC 1122 Host Requirements RFC 1141 Incremental updating of the Internet checksum RFC 1142 OSI IS-IS Intra-domain Routing Protocol RFC 1144 Compressing TCP/IP headers for low-speed serial links RFC 1195 OSI ISIS for IP and Dual Environments RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1293 Inverse Address Resolution Protocol RFC 1315 Management Information Base for Frame Relay DTEs RFC 1332 The PPP Internet Protocol Control Protocol (IPCP) RFC 1333 PPP Link Quality Monitoring RFC 1334 PPP Authentication Protocols (PAP) RFC 1349 Type of Service RFC 1350 TFTP Protocol (revision 2) RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP) RFC 1381 SNMP MIB Extension for X.25 LAPB RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol		IP multicast RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3
		IPv6 RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration

Specifications (continued)

	HP A-MSR30-40 Multi-Service Router (JF229A)	HP A-MSR30-40 PoE Multi-Service Router (JF803A)	HP A-MSR30-40 DC Multi-Service Router (JF287A)
Standards and protocols (applies to all products in series)	RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2472 IP Version 6 over PPP RFC 2473 Generic Packet Tunneling in IPv6 RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 MIBs RFC 1213 MIB II RFC 1229 Interface MIB Extensions RFC 1286 Bridge MIB RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interfaces MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2618 RADIUS Client MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB RFC 2933 IGMP MIB RFC 3813 MPLS LSR MIB	Network management IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1905 SNMPv2 Protocol Operations RFC 2272 SNMPv3 Management Protocol RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2275 VACM for SNMPv3 RFC 2575 SNMPv3 View-based Access Control Model (VACM) RFC 3164 BSD syslog Protocol OSPF RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA QoS/CoS IEEE 802.1P (CoS) RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP Security IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm	RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication RFC 2138 RADIUS Authentication RFC 2209 RSVP-Message Processing RFC 2246 Transport Layer Security (TLS) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication VPN RFC 2403 - HMAC-MD5-96 RFC 2404 - HMAC-SHA1-96 RFC 2405 - DES-CBC Cipher algorithm RFC 2547 BGP/MPLS VPNs RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IGBP RFC 2842 Capabilities Advertisement with BGP-4 RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2918 Route Refresh Capability for BGP-4 RFC 3107 Carrying Label Information in BGP-4 IPsec RFC 1828 IP Authentication using Keyed MD5 RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation RFC 2410 - The NULL Encryption Algorithm and its use with IPsec RFC 2411 IP Security Document Roadmap RFC 2412 - OAKLEY RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

Specifications



HP A-MSR30-60 Multi-Service Router (JF230A)



HP A-MSR30-60 PoE Multi-Service Router (JF804A)

Ports	4 SIC slots 6 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports	4 SIC slots 6 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports
Physical characteristics		
Dimensions	16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)	16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)
Weight	29.98 lb. (13.6 kg)	29.98 lb. (13.6 kg)
Memory and processor		
Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack
Performance		
Throughput	360 Kpps (64-byte packets)	360 Kpps (64-byte packets)
Routing table size	30,000 entries	30,000 entries
Environment		
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing
Electrical characteristics		
Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)	717 BTU/hr (756.44 kJ/hr)
Voltage	100-120 / 200-240 VAC	100-120 / 200-240 VAC
Maximum power rating	210 W	210 W
PoE power		375 W
Frequency	50 / 60 Hz	50 / 60 Hz
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB

Specifications (continued)

	HP A-MSR30-60 Multi-Service Router (JF230A)	HP A-MSR30-60 PoE Multi-Service Router (JF804A)
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP A-MSR30-60 Multi-Service Router (JF230A)	HP A-MSR30-60 PoE Multi-Service Router (JF804A)
Standards and protocols (applies to all products in series)	
BGP RFC 1163 Border Gateway Protocol (BGP) RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping	RFC 1490 Multiprotocol Interconnect over Frame Relay RFC 1519 CIDR RFC 1534 DHCP/BOOTP Interoperation RFC 1542 Clarifications and Extensions for the Bootstrap Protocol RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP) RFC 1577 Classical IP and ARP over ATM RFC 1613 Cisco Systems X.25 over TCP (XOT) RFC 1624 Incremental Internet Checksum RFC 1631 NAT RFC 1638 PPP Bridging Control Protocol (BCP) RFC 1661 The Point-to-Point Protocol (PPP) RFC 1662 PPP in HDLC-like Framing RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2 RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks RFC 1721 RIP-2 Analysis RFC 1722 RIP-2 Applicability RFC 1723 RIP v2 RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLsw RIG: DLsw Closed Pages, DLsw Standard Version 1 RFC 1812 IPv4 Routing RFC 1829 The ESP DES-CBC Transform RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses RFC 1944 Benchmarking Methodology for Network Interconnect Devices RFC 1973 PPP in Frame Relay RFC 1974 PPP Stac LZS Compression Protocol RFC 1990 The PPP Multilink Protocol (MP) RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP) RFC 2091 Trigger RIP RFC 2131 DHCP RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2166 APPN Implementer's Workshop Closed Pages Document DLsw v2.0 Enhancements RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification RFC 2280 Routing Policy Specification Language (RPSL) RFC 2284 EAP over LAN RFC 2338 VRRP RFC 2364 PPP Over AAL5 RFC 2374 An Aggregatable Global Unicast Address Format RFC 2451 The ESP CBC-Mode Cipher Algorithms RFC 2453 RIPv2 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols RFC 2511 Internet X.509 Certificate Request Message Format RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE) RFC 2644 Directed Broadcast Control RFC 2661 L2TP RFC 2663 NAT Terminology and Considerations RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 RFC 2694 DNS extensions to Network Address Translators (DNS_ALG) RFC 2702 Requirements for Traffic Engineering Over MPLS RFC 2747 RSVP Cryptographic Authentication RFC 2763 Dynamic Name-to-System ID mapping support RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT) RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)
Device management RFC 1305 NTPv3 RFC 1945 Hypertext Transfer Protocol - HTTP/1.0 RFC 2271 FrameWork RFC 2452 MIB for TCP6 RFC 2454 MIB for UDP6	RFC 2784 Generic Routing Encapsulation (GRE) RFC 2787 Definitions of Managed Objects for VRRP RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 2993 Architectural Implications of NAT RFC 3022 Traditional IP Network Address Translator (Traditional NAT) RFC 3027 Protocol Complications with the IP Network Address Translator RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3036 LDP Specification RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS
General protocols IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Reconfiguration of Spanning Tree RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 855 Telnet Option Specification RFC 856 TELNET RFC 858 Telnet Suppress Go Ahead Option RFC 894 IP over Ethernet RFC 925 Multi-LAN Address Resolution RFC 950 Internet Standard Subnetting Procedure RFC 959 File Transfer Protocol (FTP) RFC 1006 ISO transport services on top of the TCP: Version 3 RFC 1027 Proxy ARP RFC 1034 Domain Concepts and Facilities RFC 1035 Domain Implementation and Specification RFC 1042 IP Datagrams RFC 1058 RIPv1 RFC 1071 Computing the Internet Checksum RFC 1091 Telnet Terminal-Type Option RFC 1122 Host Requirements RFC 1141 Incremental updating of the Internet checksum RFC 1142 OSI IS-IS Intra-domain Routing Protocol RFC 1144 Compressing TCP/IP headers for low-speed serial links RFC 1195 OSI ISIS for IP and Dual Environments RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1293 Inverse Address Resolution Protocol RFC 1315 Management Information Base for Frame Relay DTEs RFC 1332 The PPP Internet Protocol Control Protocol (IPCP) RFC 1333 PPP Link Quality Monitoring RFC 1334 PPP Authentication Protocols (PAP) RFC 1349 Type of Service RFC 1350 TFTP Protocol (revision 2) RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP) RFC 1381 SNMP MIB Extension for X.25 LAPB RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2784 Generic Routing Encapsulation (GRE) RFC 2787 Definitions of Managed Objects for VRRP RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 2993 Architectural Implications of NAT RFC 3022 Traditional IP Network Address Translator (Traditional NAT) RFC 3027 Protocol Complications with the IP Network Address Translator RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3036 LDP Specification RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS
	IP multicast RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3
	IPv6 RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration

Specifications (continued)

HP A-MSR30-60 Multi-Service Router (JF230A)	HP A-MSR30-60 PoE Multi-Service Router (JF804A)
Standards and protocols (applies to all products in series) RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2472 IP Version 6 over PPP RFC 2473 Generic Packet Tunneling in IPv6 RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 MIBs RFC 1213 MIB II RFC 1229 Interface MIB Extensions RFC 1286 Bridge MIB RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interfaces MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB RFC 2933 IGMP MIB RFC 3813 MPLS LSR MIB	Network management IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1905 SNMPv2 Protocol Operations RFC 2272 SNMPv3 Management Protocol RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2275 VACM for SNMPv3 RFC 2575 SNMPv3 View-based Access Control Model (VACM) RFC 3164 BSD syslog Protocol OSPF RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA QoS/CoS IEEE 802.1P (CoS) RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP Security IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm
	RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication RFC 2138 RADIUS Authentication RFC 2209 RSVP-Message Processing RFC 2246 Transport Layer Security (TLS) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication VPN RFC 2403 - HMAC-MD5-96 RFC 2404 - HMAC-SHA1-96 RFC 2405 - DES-CBC Cipher algorithm RFC 2547 BGP/MPLS VPNs RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IGBP RFC 2842 Capabilities Advertisement with BGP-4 RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2918 Route Refresh Capability for BGP-4 RFC 3107 Carrying Label Information in BGP-4 IPsec RFC 1828 IP Authentication using Keyed MD5 RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation RFC 2410 - The NULL Encryption Algorithm and its use with IPsec RFC 2411 IP Security Document Roadmap RFC 2412 - OAKLEY RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

Specifications



HP A-MSR30-60 DC Multi-Service Router (JF801A)



HP A-MSR30-11 Multi-Service Router (JF800A)

Ports	4 SIC slots 6 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports	2 SIC slots 1 MIM module slot 1 Serial port 2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full
Physical characteristics		
Dimensions	16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)	14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)
Weight	29.98 lb. (13.6 kg)	10.14 lb. (4.6 kg)
Memory and processor		
Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 333 MHz, 256 MB DDR SDRAM, 32 MB flash
Mounting	Mounts in an EIA standard 19-in. rack	Mounts in an EIA standard 19-in. rack
Performance		
Throughput	360 Kpps (64-byte packets)	220 Kpps (64-byte packets)
Routing table size	30,000 entries	30,000 entries
Environment		
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 90%, non-condensing	5% to 90%, non-condensing
Electrical characteristics		
Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)	113 BTU/hr (119.21 kJ/hr)
Voltage		100-120 / 200-240 VAC
DC Voltage	-48 VDC to -60 VDC	
Maximum power rating	210 W	54 W
Frequency		50 / 60 Hz
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB

Specifications (continued)

	HP A-MSR30-60 DC Multi-Service Router (JF801A)	HP A-MSR30-11 Multi-Service Router (JF800A)
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP A-MSR30-60 DC Multi-Service Router (JF801A)

Standards and protocols (applies to all products in series)

BGP

RFC 1163 Border Gateway Protocol (BGP)
RFC 1267 Border Gateway Protocol 3 (BGP-3)
RFC 1657 Definitions of Managed Objects for BGPv4
RFC 1771 BGPv4
RFC 1772 Application of the BGP
RFC 1773 Experience with the BGP-4 Protocol
RFC 1774 BGP-4 Protocol Analysis
RFC 1965 BGP4 confederations
RFC 1997 BGP Communities Attribute
RFC 1998 PPP Gandalf FZA Compression Protocol
RFC 2385 BGP Session Protection via TCP MD5
RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3
RFC 1945 Hypertext Transfer Protocol – HTTP/1.0
RFC 2271 FrameWork
RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 855 Telnet Option Specification
RFC 856 TELNET
RFC 858 Telnet Suppress Go Ahead Option
RFC 894 IP over Ethernet
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 959 File Transfer Protocol (FTP)
RFC 1006 ISO transport services on top of the TCP: Version 3
RFC 1027 Proxy ARP
RFC 1034 Domain Concepts and Facilities
RFC 1035 Domain Implementation and Specification
RFC 1042 IP Datagrams
RFC 1058 RIPv1
RFC 1071 Computing the Internet Checksum
RFC 1091 Telnet Terminal-Type Option
RFC 1122 Host Requirements
RFC 1141 Incremental updating of the Internet checksum
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 1144 Compressing TCP/IP headers for low-speed serial links
RFC 1195 OSI ISIS for IP and Dual Environments
RFC 1256 ICMP Router Discovery Protocol (IRDP)
RFC 1293 Inverse Address Resolution Protocol
RFC 1315 Management Information Base for Frame Relay DTEs
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)
RFC 1333 PPP Link Quality Monitoring
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1349 Type of Service
RFC 1350 TFTP Protocol (revision 2)
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)
RFC 1381 SNMP MIB Extension for X.25 LAPB
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol

HP A-MSR30-11 Multi-Service Router (JF800A)

RFC 1490 Multiprotocol Interconnect over Frame Relay
RFC 1519 CIDR
RFC 1534 DHCP/BOOTP Interoperation
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)
RFC 1577 Classical IP and ARP over ATM
RFC 1613 Cisco Systems X.25 over TCP (XOT)
RFC 1624 Incremental Internet Checksum
RFC 1631 NAT
RFC 1638 PPP Bridging Control Protocol (BCP)
RFC 1661 The Point-to-Point Protocol (PPP)
RFC 1662 PPP in HDLC-like Framing
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2
RFC 1701 Generic Routing Encapsulation
RFC 1702 Generic Routing Encapsulation over IPv4 networks
RFC 1721 RIP-2 Analysis
RFC 1722 RIP-2 Applicability
RFC 1723 RIP v2
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1
RFC 1812 IPv4 Routing
RFC 1829 The ESP DES-CBC Transform
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
RFC 1944 Benchmarking Methodology for Network Interconnect Devices
RFC 1973 PPP in Frame Relay
RFC 1974 PPP Stac LZS Compression Protocol
RFC 1990 The PPP Multilink Protocol (MP)
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2091 Trigger RIP
RFC 2131 DHCP
RFC 2132 DHCP Options and BOOTP Vendor Extensions
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification
RFC 2280 Routing Policy Specification Language (RPSL)
RFC 2284 EAP over LAN
RFC 2338 VRRP
RFC 2364 PPP Over AAL5
RFC 2374 An Aggregatable Global Unicast Address Format
RFC 2451 The ESP CBC-Mode Cipher Algorithms
RFC 2453 RIPv2
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2511 Internet X.509 Certificate Request Message Format
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2644 Directed Broadcast Control
RFC 2661 L2TP
RFC 2663 NAT Terminology and Considerations
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)

RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for VRRP
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2993 Architectural Implications of NAT
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3027 Protocol Complications with the IP Network Address Translator
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3046 DHCP Relay Agent Information Option
RFC 3063 MPLS Loop Prevention Mechanism
RFC 3065 Support AS confederation
RFC 3137 OSPF Stub Router Advertisement
RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 3214 LSP Modification Using CR-LDP
RFC 3215 LDP State Machine
RFC 3246 Expedited Forwarding PHB
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3392 Support BGP capabilities advertisement
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 3847 Restart signaling for IS-IS

IP multicast

RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3376 IGMPv3

IPv6

RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2292 Advanced Sockets API for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration

Specifications (continued)

HP A-MSR30-60 DC Multi-Service Router (JF801A)	HP A-MSR30-11 Multi-Service Router (JF800A)
Standards and protocols (applies to all products in series) RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2472 IP Version 6 over PPP RFC 2473 Generic Packet Tunneling in IPv6 RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 MIBs RFC 1213 MIB II RFC 1229 Interface MIB Extensions RFC 1286 Bridge MIB RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interfaces MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB RFC 2933 IGMP MIB RFC 3813 MPLS LSR MIB	Network management IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1905 SNMPv2 Protocol Operations RFC 2272 SNMPv3 Management Protocol RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2275 VACM for SNMPv3 RFC 2575 SNMPv3 View-based Access Control Model (VACM) RFC 3164 BSD syslog Protocol OSPF RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA QoS/CoS IEEE 802.1P (CoS) RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP Security IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm
	RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication RFC 2138 RADIUS Authentication RFC 2209 RSVP-Message Processing RFC 2246 Transport Layer Security (TLS) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication VPN RFC 2403 - HMAC-MD5-96 RFC 2404 - HMAC-SHA1-96 RFC 2405 - DES-CBC Cipher algorithm RFC 2547 BGP/MPLS VPNs RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP RFC 2842 Capabilities Advertisement with BGP-4 RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2918 Route Refresh Capability for BGP-4 RFC 3107 Carrying Label Information in BGP-4 IPsec RFC 1828 IP Authentication using Keyed MD5 RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation RFC 2410 - The NULL Encryption Algorithm and its use with IPsec RFC 2411 IP Security Document Roadmap RFC 2412 - OAKLEY RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

Transceivers

HP X110 100M SFP LC FX Transceiver (JD102B)
HP X110 100M SFP LC LX Transceiver (JD120B)
HP X110 100M SFP LC LH40 Transceiver (JD090A)
HP X110 100M SFP LC LH80 Transceiver (JD091A)
HP X125 1G SFP LC SX Transceiver (JD118B)
HP X120 1G SFP LC LX Transceiver (JD119B)
HP X124 1G SFP LC LH40 1310nm Transceiver (JD061A)
HP X120 1G SFP LC LH40 1550nm Transceiver (JD062A)
HP X125 1G SFP LC LH70 Transceiver (JD063B)

Cables

HP X200 V.24 DTE 3m Serial Port Cable (JD519A)
HP X200 V.24 DCE 3m Serial Port Cable (JD521A)
HP X200 V.35 DTE 3m Serial Port Cable (JD523A)
HP X200 V.35 DCE 3m Serial Port Cable (JD525A)
HP X200 X.21 DTE 3m Serial Port Cable (JD527A)
HP X200 X.21 DCE 3m Serial Port Cable (JD529A)
HP X260 RS449 3m DTE Serial Port Cable (JF825A)
HP X260 RS449 3m DCE Serial Port Cable (JF826A)
HP X260 RS530 3m DTE Serial Port Cable (JF827A)
HP X260 RS530 3m DCE Serial Port Cable (JF828A)
HP X260 Auxiliary Router Cable (JD508A)
HP X260 E1 RJ45 3m Router Cable (JD509A)
HP X260 E1 RJ45 20m Router Cable (JD517A)
HP X260 E1 BNC 75 ohm 3m Router Cable (JD175A)
HP X260 E1 BNC 20m Router Cable (JD514A)
HP X260 E1 BNC 75 ohm 40m Router Cable (JD516A)
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable (JD511A)
HP X260 2E1 BNC 3m Router Cable (JD643A)
HP X260 T1 Router Cable (JD518A)
HP X260 T1V1 DB15M RJ45 3m Router Cable (JF843A)
HP X260 T1 Voice Router Cable (JD535A)
HP X260 E1 8-port Router Cable (JD635A)
HP X260 8T1 RJ45 3m Router Cable (JD639A)
HP X260 T3/E3 Router Cable (JD531A)
HP X260 E3-30 E3/T3 Router Cable (JD533A)
HP X260 E1 4-port IMA Router Cable (JD638A)
HP CAB-75ohm 8E1-3m-BNC-IMA (JD927A)
HP X260 T1 4-port IMA Router Cable (JD640A)
HP X260 8E1 BNC 75 ohm 3m Router Cable (JD512A)
HP X260 SIC-8AS RJ45 0.28m Router Cable (JD642A)
HP X200 Transit Plug D25F MP8(S) Single Cable (JD636A)
HP X200 Transit Cable RJ45 0.5m Single Cable (JD641A)

Power Supply

HP RPS 800 A Redundant Power Supply (JD183A)

Router Modules

HP Advanced Encryption Accelerator A-MSR Module (JD608A)
HP Standard Encryption Accelerator A-MSR Module (JD609A)

HP Voice Co-Processor Module A-MSR Module (JD610A)
HP 32-Channel Voice Processor A-MSR Module (JD598A)
HP 24-Channel Voice Processor A-MSR Module (JD599A)
HP 16-Channel Voice Processor A-MSR Module (JD600A)
HP 8-Channel Voice Processor A-MSR Module (JD601A)
HP 9-port 10/100 DSIC A-MSR Module (JD574B)
HP 9-port 10/100 PoE DSIC A-MSR Module (JD621A)
HP 4-port 10/100 SIC A-MSR Module (JD573B)
HP 4-port 10/100 PoE SIC Module (JD620A)
HP 1-port 10/100 SIC A-MSR Module (JD545B)
HP 1-port 100Mbt SFP SIC Router Module (JF280A)
HP 1-port 10/100/1000 SIC A-MSR Module (JD572A)
HP 2-port FXO SIC A-MSR Module (JD558A)
HP 1-port FXO SIC A-MSR Module (JD559A)
HP 2-port FXS SIC A-MSR Module (JD560A)
HP 1-port FXS SIC A-MSR Module (JD561A)
HP 2-port ISDN-S/T Voice Interface SIC Module (JF821A)
HP 2FXS+1FXO Voice Interface SIC A-MSR Module (JD632A)
HP 1-port E1-Voice SIC A-MSR Module (JD575A)
HP 1-port T1-Voice SIC A-MSR Module (JD576A)
HP 1-Port Fractional E1 SIC A-MSR Module (JD634B)
HP 1-port Fractional SIC A-MSR Module (JD538A)
HP 1-port Analog Modem SIC A-MSR Module (JD536A)
HP 1-port ADSL2+ SIC A-MSR Module (JD537A)
HP 1-port Enhanced Serial SIC A-MSR Module (JD557A)
HP 1-port ISDN-U SIC A-MSR Module (JD570A)
HP 1-port ISDN-S/T SIC A-MSR Module (JD571A)
HP 8-port Asynchronous Serial SIC Module (JF281A)
HP 802.11b/g/n Wireless Access Point SIC Module (JF819A)
HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A)
HP 2-port 10/100 MIM A-MSR Module (JD613A)
HP 4-Port 10/100Base-TX A-MSR Module (JD551A)
HP 2-port 10/100/1000BASE-T MIM A-MSR Module (JD548A)
HP 16-port 10/100 MIM A-MSR Module (JD569A)
HP 16-port 10/100 PoE MIM A-MSR Module (JD618A)
HP 24-Port 10/100 DMIM A-MSR Module (JD564A)
HP 24-port 10/100 PoE DMIM A-MSR Module (JD619A)
HP 2-port Enhanced Serial MIM A-MSR Module (JD540A)
HP 4-port Enhanced Serial MIM A-MSR Module (JD541A)
HP 8-port Enhanced Sync/Async Interface A-MSR Module (JD552A)
HP 8p Async Serial Intrfc MIM A-MSR Module (JF840A)
HP 16p Async Serial Intrfc MIM A-MSR Module (JF841A)
HP 4-port FXO MIM A-MSR Module (JD542A)
HP 2-port FXO MIM A-MSR Module (JD543A)
HP 4-port FXS MIM A-MSR Module (JD553A)
HP 16-port FXS Voice Interface MIM Module (JF822A)

HP A-MSR30 Series accessories (continued)

HP 4-port ISDN BRI S/T Voice Interface MIM Module (JF837A)

HP 4-port Voice E/M MIM A-MSR Module (JD539A)

HP 1-Port E1 Voice MIM A-MSR Module (JD565A)

HP 2-port E1-Voice MIM A-MSR Module (JD567A)

HP 1-port T1 Voice MIM A-MSR Module (JD566A)

HP 2-port T1-Voice MIM A-MSR Module (JD568A)

HP 2-port CE1/PRI MIM A-MSR Module (JD544A)

HP 2-port FT1/CT1 PRI MIM A-MSR Module (JD549A)

HP 4-port CE1/CT1 PRI MIM A-MSR Module (JD550A)

HP 8-port E1 PRI MIM MSR Module (JD563A)

HP 8-port Fractional E1 MIM MSR Module (JF255A)

HP 4-port T1 IMA MIM A-MSR Module (JD556A)

HP 1-port FT3/CT3 MIM A-MSR Module (JD628A)

HP 1-port FE3/CE3 MIM A-MSR Module (JD630A)

HP 1-port G.SHDSL MIM A-MSR Module (JD547A)

HP 1-port OC-3 ATM MIM A-MSR Module (JD624A)

HP 2-port Fractional E1 SIC A-MSR Module (JF842A)

Power cords

HP X290 A-MSR30 1m RPS Cable (JD637A)

Memory

HP A-MSR 256MB SDRAM Memory (JD647A)

HP A-MSR 512MB SDRAM Memory (JD648A)

HP A-MSR30-10 Multi-Service Router (JF816A)

HP RT-XMIM-16FSW-H3 (JF279A)

HP RT-XMIM-24FSW-H3 (JF276A)

HP A-MSR30-20 DC Multi-Service Router (JF235A)

HP A-MSR30 Router Software License (JD679A)

HP A-MSR30-40 DC Multi-Service Router (JF287A)

HP A-MSR30 Router Software License (JD679A)

HP A-MSR30-60 DC Multi-Service Router (JF801A)

HP A-MSR30 Router Software License (JD679A)

HP A-MSR30-11 Multi-Service Router (JF800A)

HP RT-XMIM-16FSW-H3 (JF279A)

HP RT-XMIM-24FSW-H3 (JF276A)

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